Initially, Applicant thanks the Examiner for the courteous treatment afforded Applicant's undersigned representative during the telephone interviews conducted on December 20, 2002, and January 10, 2003. During those interviews, U.S. Patent No. 5,701,404 (Stevens) was discussed with respect to the independent claims presented in the Amendment After Final Rejection dated September 18, 2002. While no agreement was reached during the interviews, Applicant has prepared this response in light of those discussions with the Examiner.

Applicant also thanks the Examiner for the indication in the Office Action that Claims 7, 10, 15, 16, 24, 27, 32, 33, 41, 44, 49 and 50 contain allowable subject matter and would be allowable if rewritten in independent form. Applicant has not rewritten these claims in independent form, however, since it is believed that all claims in the application are in condition for allowance, as discussed in more detail below.

Claims 1 to 6, 8, 9, 11 to 13, 18 to 23, 25, 26, 28 to 30, 35 to 40, 42, 43 and 45 to 47 were rejected under 35 U.S.C. § 102(e) over U.S. Patent No. 5,701,404 (Stevens); and Claims 14, 17, 31, 34, 48 and 51 to 57 were rejected under § 103(a) over Stevens in view of U.S. Patent No. 5,805,783 (Ellson). Applicant has carefully considered the Examiner's comments together with the applied references and respectfully submits that the claims herein are patentably distinguishable over the applied references for at least the following reasons.

The present invention concerns the generation of a graphical object, which is comprised of a plurality of closed loops, by transforming a set of closed first curves, which define a boundary of a surface, to the plurality of closed loops and filling the closed loops with a fill. According to the invention, the closed loops are assembled from curve

intervals of the closed first curves and a set of continuous second curves in accordance with a predetermined rule. The curve intervals are delimited by adjacent crossover points determined from intersection points where the continuous second curves intersect and cross over the closed first curves on the boundary of the surface. In this manner, the plurality of closed loops abuts a substantial portion of the boundary of the surface, thereby retaining the overall shape of the surface.

With reference to particular claim language, independent Claims 1, 18 and 35 concern generating a graphical object comprising a plurality of closed loops by transforming a set of one or more closed first curves defining a boundary of a surface to the plurality of closed loops, where the set of one or more closed first curves contains no self-crossover points. A set of continuous curves lying on the surface is provided, wherein each of the continuous second curves intersects and crosses over one or more of the closed first curves and wherein the set of continuous second curves contains no self-crossover points. A set of intersection points is determined, wherein the intersection points are those points where the one or more closed first curves intersect the continuous second curves and which lie on the boundary of the surface. A set of crossover points is determined from the set of intersection points. The plurality of closed loops is assembled from curve intervals, delimited by adjacent determined crossover points, selected from the set of one or more closed first curves and the set of continuous second curves in accordance with a predetermined rule, where the plurality of closed loops abuts a substantial portion of the boundary of the surface. The plurality of closed loops is then filled with a fill to produce the graphical object.

The applied references are not understood to disclose or suggest the foregoing features of the present invention. In particular, the applied references are not understood to disclose or suggest at least the features of assembling a plurality of closed loops from curve intervals, delimited by adjacent determined crossover points, selected from a set of closed first curves that define a boundary of a surface and a set of continuous second curves in accordance with a predetermined rule, where the assembled closed loops abut a substantial portion of the boundary of the surface, and filling the closed loops with a fill to produce a graphical object.

As discussed in Applicant's previous response, Stevens concerns the trimming of a NURBS surface by projecting rays from sample points on a curve into a domain of the surface and connecting intersections of the rays and the surface domain to define trim regions in the surface. The projection of rays from the curve to trim the NURBS surface in Stevens, however, is not understood to be done in accordance with a predetermined rule. Rather, the type of the projection as well as the direction of the projection is understood to be done according to user specifications, as mentioned in column 6, lines 24 to 26, of Stevens. Furthermore, since the type and direction of the projection are understood to be set arbitrarily by a user in Stevens, the resulting trimmed NURBS surface is not understood necessarily to abut a substantial portion of the boundary of the original NURBS surface and therefore the overall shape of the NURBS surface is not always retained. For example, the trimmed NURBS surface depicted in Figure 3B of Stevens is understood to not abut any of the original surface boundary and accordingly does not retain any of the shape of the original NURBS surface.

The Office Action indicated that the subject matter of Claim 10 in the application was allowable. Specifically, Claim 10 sets forth the feature of filling the closed loops with a predetermined color. Along these lines, Applicant respectfully submits that Stevens is not understood to fill the resulting trimmed NURBS surface with a fill of any sort. Therefore, for the foregoing reasons, Stevens is not understood to disclose or suggest at least the features of assembling a plurality of closed loops from curve intervals, delimited by adjacent determined crossover points, selected from a set of closed first curves that define a boundary of a surface and a set of continuous second curves in accordance with a predetermined rule, where the assembled closed loops abut a substantial portion of the boundary of the surface, and filling the closed loops with a fill to produce a graphical object.

Ellson is not understood to disclose or suggest anything to remedy the foregoing deficiencies of Stevens. Ellson concerns the creation of three-dimensional or depth image font text characters. However, Ellson, either alone or in combination with Stevens, is not understood to disclose or suggest at least the features of assembling a plurality of closed loops from curve intervals, delimited by adjacent determined crossover points, selected from a set of closed first curves that define a boundary of a surface and a set of continuous second curves in accordance with a predetermined rule, where the assembled closed loops abut a substantial portion of the boundary of the surface, and filling the closed loops with a fill to produce a graphical object.

Accordingly, independent Claims 1, 18 and 35 are believed to be allowable over the applied references. Reconsideration and withdrawal of the § 102(e) rejection of Claims 1, 18 and 35 are respectfully requested.

Independent Claims 52, 53 and 54 concern modifying a typeface, font or character, wherein the typeface, font or character includes a set of one or more closed first curves defining a boundary of a surface of the typeface, font or character. The set of one or more closed first curves contains no self-crossover points. A set of continuous second curves lying on the surface is provided, wherein each of the continuous second curves intersects and crosses over one or more of the closed first curves and the set of continuous second curves contains no self-crossover points. A set of intersection points is determined, where the intersection points are those points where the one or more closed first curves intersect the continuous second curves and which lie on the boundary of the surface. A set of crossover points is determined from the set of intersection points. A plurality of closed loops are assembled from curve intervals, delimited by adjacent determined crossover points, from the set of one or more closed first curves and the set of continuous second curves in accordance with a predetermined rule, where the plurality of closed loops abuts a substantial portion of the boundary of the surface. The plurality of closed loops is then filled with a fill to form the modified typeface, font or character.

The applied references are not understood to disclose or suggest the foregoing features of the present invention. In particular, the applied references are not understood to disclose or suggest at least the features of assembling a plurality of closed loops from curve intervals, delimited by adjacent determined crossover points, selected from a set of closed first curves that define a boundary of a surface and a set of continuous second curves in accordance with a predetermined rule, where the assembled closed loops

abut a substantial portion of the boundary of the surface, and filling the closed loops with a fill to form a modified typeface, font or character.

As discussed above with respect to Claims 1, 18 and 35, the combination of Stevens and Ellson is not understood to disclose or suggest the features of assembling a plurality of closed loops from curve intervals, delimited by adjacent determined crossover points, selected from a set of closed first curves that define a boundary of a surface and a set of continuous second curves in accordance with a predetermined rule, where the assembled closed loops abut a substantial portion of the boundary of the surface, and filling the closed loops with a fill to produce a graphical object. Therefore, the combination of Stevens and Ellson is also not understood to disclose or suggest at least the features of assembling a plurality of closed loops from curve intervals, delimited by adjacent determined crossover points, selected from a set of closed first curves that define a boundary of a surface and a set of continuous second curves in accordance with a predetermined rule, where the assembled closed loops abut a substantial portion of the boundary of the surface, and filling the closed loops with a fill to form a modified typeface, font or character.

Accordingly, independent Claims 52, 53 and 54 are believed to be allowable over the applied references. Reconsideration and withdrawal of the § 103(a) rejection of Claims 52, 53 and 54 are respectfully requested.

Independent Claims 55, 56 and 57 concern modifying a typeface, font or character, where the typeface, font or character includes a set of one or more closed first curves defining a boundary of a surface of the typeface, font or character. The set of one or

more closed first curves contains no self-crossover points. A set of continuous second curves lying on the surface is provided, where each of the continuous second curves intersects and crosses over one or more of the closed first curves and the set of continuous second curves contains no self-crossover points. A set of intersection points is determined, where the intersection points are those points where the one or more closed first curves intersect the continuous second curves and which lie on the boundary of the surface. A set of crossover points is determined from the set of intersection points. Unmarked adjacent crossover points are selected from the set of determined crossover points to form a closed loop. The selected adjacent crossover points are then marked. The steps of selecting and marking adjacent crossover points are repeated until a set of closed loops have been formed, where the set of closed loops abuts a substantial portion of the boundary of the surface. The set of closed loops is then filled with a fill to form the modified typeface, font or character.

The applied references are not understood to disclose or suggest the foregoing features of the present invention. In particular, the applied references are not understood to disclose or suggest at least the features of forming a set of closed loops that abuts a substantial portion of a boundary of a surface of a typeface, font or character, and filling the set of closed loops with a fill to form a modified typeface, font or character.

As discussed above with respect to Claims 1, 18 and 35, the combination of Stevens and Ellson is not understood to disclose or suggest the features of assembling a plurality of closed loops that abut a substantial portion of the boundary of the surface, and filling the closed loops with a fill to produce a graphical object. Therefore, Stevens and

Ellson are also not understood to disclose or suggest at least the features of forming a set of closed loops that abuts a substantial portion of a boundary of a surface of a typeface, font or character, and filling the set of closed loops with a fill to form a modified typeface, font or character.

Accordingly, independent Claims 55, 56 and 57 are believed to be allowable over the applied references. Reconsideration and withdrawal of the § 103(a) rejection of Claims 55, 56 and 57 are respectfully requested.

New independent Claims 58, 59 and 60 concern generating a graphical object comprising a plurality of closed loops by transforming a set of closed first curves defined on a surface. A pattern comprising a set of continuous second curves that intersect the set of closed first curves is provided upon the surface. Crossover points of the intersections of the set of closed first curves and the set of continuous second curves are determined and closed loops are generated in accordance with the determined crossover points, where the closed loops abut a substantial portion of the boundary of the surface. The closed loops are then filled with a predetermined color to produce the graphical object.

The references applied in the Office Action are not understood to disclose or suggest at least the foregoing features of generating closed loops in accordance with determined crossover points that abut a substantial portion of the boundary of the surface and are filled with a predetermined color to produce the graphical object. Accordingly, independent Claims 58, 59 and 60 are believed to be allowable over the applied references.

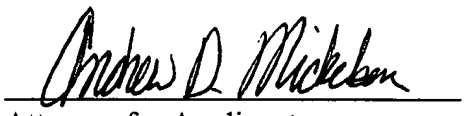
The other claims in the application are dependent from the independent claims discussed above and are therefore believed to be allowable over the applied

references for at least the same reasons. Because each dependent claim is deemed to define an additional aspect of the invention, however, the individual consideration of each on its own merits is respectfully requested.

In view of the foregoing amendment and remarks, the entire application is believed to be in condition for allowance and such action is respectfully requested at the Examiner's earliest convenience.

Applicant's undersigned attorney may be reached in our Costa Mesa, California, office by telephone at (714) 540-8700. All correspondence should be directed to our address given below.

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW CHANGES MADE TO THE SPECIFICATION

Please amend the paragraph beginning at page 1, line 20, as follows.

The publication United States Patent No. 5,701,404 discloses a method for trimming non-uniform rational B-spline surfaces according to curves projected onto them. However, this method suffers from the disadvantage that the basic overall shape of the original outline is not always retained.

VERSION WITH MARKINGS TO SHOW CHANGES MADE TO CLAIMS

1. (Twice Amended) A method for generating a graphical object comprising a plurality of closed loops by transforming a set of one or more closed first curves defining a boundary of a surface to [a set of a] the plurality of closed loops, wherein the set of one or more closed first curves contains no self-crossover points, the method comprising the steps of:

a providing step of providing a set of continuous second curves lying on the surface, wherein each of the continuous second curves intersects and crosses over one or more of the closed first curves and the set of continuous second curves contains no self-crossover points;

a first determining step of determining a set of intersection points, wherein the intersection points are those points where the one or more closed first curves intersect the continuous second curves and which lie on the boundary of the surface;

a second determining step of determining a set of crossover points from the determined set of intersection points; [and

selecting a plurality of curve intervals] an assembling step of assembling the plurality of closed loops from curve intervals, delimited by [the] adjacent determined crossover points, from the set of one or more closed first curves and the set of continuous second curves in accordance with a predetermined rule[ to form the set of a plurality of

closed loops], whereby the [set of a] plurality of closed loops abuts a substantial portion of the boundary of the surface; and

a filling step of filling the plurality of closed loops with a fill to produce the graphical object.

2. (Twice Amended) A method as claimed in claim 1, wherein said [selecting] assembling step comprises the substeps of:

an ordering substep of ordering the set of crossover points in accordance with a predetermined order;

a first marking substep of marking one of the crossover points that is highest in the predetermined order and that has not been previously marked;

a determining substep of determining if a last marked crossover point is a first point in a closed loop, and if so performing:

a first selecting substep of selecting a curve interval starting at the first point and terminating at an unmarked crossover point; and

a second marking substep of marking the terminating crossover point of the selected curve interval; or if not performing:

a second selecting substep of selecting a curve interval starting at the previous terminating crossover point and terminating at an unmarked crossover point; and

a third marking substep of marking the current terminating crossover point of the selected curve interval;

a first repetition substep of repetitively performing the determining substep

until the closed loop is formed; and

a second repetition substep of repetitively performing the first marking, determining and [repetitively performing] the first repetition substeps until all possible closed loops have been formed.

4. (Twice Amended) A method as claimed in claim [2] 3, wherein when it is determined in said determining substep that the last marked crossover point is not a first point in a closed loop, the curve interval is selected from the set of one or more closed first curves or the set of continuous second curves, wherein the selected curve interval is the first curve interval [located] encountered around the last marked crossover point in a second direction starting from the previously selected curve interval and which continues in a third direction and terminates at a next adjacent unmarked crossover point.

5. (Twice Amended) A method as claimed in claim [2] 4, wherein said substep of ordering the set of crossover points comprises ordering the crossover points according to their position along the set of one or more closed first curves in a fourth direction.

6. (Twice Amended) A method as claimed in claim 5, wherein the first direction and the fourth direction are in a forward direction, the third direction is either in a positive or a negative direction, and the second direction is in the same direction as a backward direction.

7. (Twice Amended) A method as claimed in claim 5, wherein the first direction and the fourth direction are in a backward direction, the third direction is either in a positive or a negative direction, and the second direction is in the same direction as a forward direction.

10. (Twice Amended) A method as claimed in claim 1, wherein said filling step [of selecting curve intervals] comprises [the substep of] filling the plurality of closed loops with a predetermined color.

18. (Twice Amended) An apparatus for generating a graphical object comprising a plurality of closed loops by transforming a set of one or more closed first curves defining a boundary of a surface to [a set of a] the plurality of closed loops, wherein the set of one or more closed first curves contains no self-crossover points, the apparatus comprising:

providing means for providing a set of continuous second curves lying on the surface, wherein each of the continuous second curves intersects and crosses over one or more of the closed first curves and the set of continuous second curves contains no self-crossover points;

first determining means for determining a set of intersection points, wherein the intersection points are those points where the one or more closed first curves intersect the continuous second curves and which lie on the boundary of the surface;

second determining means for determining a set of crossover points from the

set of intersection points; [and

first selecting means for selecting a plurality of] assembling means for assembling the plurality of closed loops from curve intervals, delimited by [the] adjacent determined crossover points, from the set of one or more closed first curves and the set of continuous second curves in accordance with a predetermined rule[ to form the set of a plurality of closed loops], whereby the [set of a] plurality of closed loops abuts a substantial portion of the boundary of the surface; and

filling means for filling the plurality of closed loops with a fill to produce the graphical object.

19. (Twice Amended) An apparatus as claimed in claim 18, wherein said [first selecting] assembling means comprises:

ordering means for ordering the set of crossover points in accordance with a predetermined order;

first marking means for marking one of the crossover points that is highest in the predetermined order and that has not been previously marked;

[second] first selecting means for selecting a curve interval starting at a first point and terminating at an unmarked crossover point;

second marking means for marking the terminating crossover point of the selected curve interval;

[third] second selecting means for selecting a curve interval starting at the previous terminating crossover point and terminating at an unmarked crossover point;

third marking means for marking the current terminating crossover point of the selected curve interval;

third determining means for determining if a last marked crossover point is the first point in a closed loop, and if so performing the operations of said [second] first selecting means and said second marking means, or if not, performing the operations of said [third] second selecting means and said [second] third marking means;

means for repetitively performing the operations of said third determining means until the closed loop is formed; and

means for repetitively performing the operations of said first marking means and said third determining means until all possible closed loops have been formed.

20. (Twice Amended) An apparatus as claimed in claim 19, wherein said [second] first selecting means selects the curve interval from the set of one or more closed first curves, wherein the selected curve interval starts at the first point, continues in a first direction, and terminates at a next adjacent unmarked crossover point.

21. (Twice Amended) An apparatus as claimed in claim [19] 20, wherein said [third] second selecting means selects the curve interval from the set of one or more closed first curves or the set of continuous second curves, wherein the selected curve interval is the first curve interval [located] encountered around the last marked crossover point in a second direction starting from the previously selected curve interval and which continues in a third direction and terminates at a next adjacent unmarked crossover point.

22. (Twice Amended) An apparatus as claimed in claim [19] 21, wherein said ordering means orders the set of crossover points according to their position along the set of one or more closed first curves in a fourth direction.

23. (Twice Amended) An apparatus as claimed in claim 22, wherein the first direction and the fourth direction are in a forward direction, the third direction is either in a positive or a negative direction, and the second direction is in the same direction as a backward direction.

24. (Twice Amended) An apparatus as claimed in claim 22, wherein the first direction and the fourth direction are in a backward direction, the third direction is either in a positive or a negative direction, and the second direction is in the same direction as a forward direction.

27. (Twice Amended) An apparatus as claimed in claim 18, wherein said filling [first selecting] means comprises means for filling the plurality of closed loops with a predetermined color.

35. (Twice Amended) A computer program product comprising a computer readable medium including a computer program for generating a graphical object comprising a plurality of closed loops by transforming a set of one or more closed first curves defining a boundary of a surface to [a set of a] the plurality of closed loops, wherein

the set of one or more closed first curves contains no self-crossover points, the computer program product comprising:

providing means for providing a set of continuous second curves lying on the surface, wherein each of the continuous second curves intersects and crosses over one or more of the closed first curves and the set of continuous second curves contains no self-crossover points;

first determining means for determining a set of intersection points, wherein the intersection points are those points where the one or more closed first curves intersect the continuous second curves and which lie on the boundary of the surface;

second determining means for determining a set of crossover points from the set of intersection points; [and

first selecting means for selecting a plurality of] assembling means for assembling the plurality of closed loops from curve intervals, delimited by [the] adjacent determined crossover points, from the set of one or more closed first curves and the set of continuous second curves in accordance with a predetermined rule[ to form the set of a plurality of closed loops], whereby the [set of a] plurality of closed loops abuts a substantial portion of the boundary of the surface; and

filling means for filling the plurality of closed loops with a fill to produce the graphical object.

36. (Twice Amended) A computer program product as claimed in claim 35, wherein said [first selecting] assembling means comprises:

ordering means for ordering the set of crossover points in accordance with a predetermined order;

first marking means for marking one of the crossover points that is highest in the predetermined order and that has not been previously marked;

[second] first selecting means for selecting a curve interval starting at a first point and terminating at an unmarked crossover point;

second marking means for marking the terminating crossover point of the selected curve interval;

[third] second selecting means for selecting a curve interval starting at the previous terminating crossover point and terminating at an unmarked crossover point;

third marking means for marking the current terminating crossover point;

third determining means for determining if the last marked crossover point is the first point in a closed loop, and if so performing the operations of said [second] first selecting means and said second marking means, or if not, performing the operations of said [third] second selecting means and said [second] third marking means;

means for repetitively performing the operations of said third determining means until the closed loop is formed; and

means for repetitively performing the operations of said first marking means and said third determining means until all possible closed loops have been formed.

37. (Twice Amended) A computer program product as claimed in claim 36, wherein said [second] first selecting means selects the curve interval from the set of one or

more closed first curves, wherein the selected curve interval starts at the first point, continues in a first direction, and terminates at a next adjacent unmarked crossover point.

38. (Twice Amended) A computer program product as claimed in claim [36] 37, wherein said [third] second selecting means selects the curve interval from the set of one or more closed first curves or the set of continuous second curves, wherein the selected curve interval is the first curve interval [located] encountered around the last marked crossover point in a second direction starting from the previously selected curve interval and which continues in a third direction and terminates at a next adjacent unmarked crossover point.

39. (Twice Amended) A computer program product as claimed in claim [36] 38, wherein said ordering means orders the set of crossover points according to their position along the set of one or more closed first curves in a fourth direction.

40. (Twice Amended) A computer program product as claimed in claim 39, wherein the first direction and the fourth direction are in a forward direction, the third direction is either in a positive or a negative direction, and the second direction is in the same direction as a backward direction.

41. (Twice Amended) A computer program product as claimed in claim 39, wherein the first direction and the fourth direction are in a backward direction, the third

direction is either in a positive or a negative direction, and the second direction is in the same direction as a forward direction.

44. (Twice Amended) A computer program product as claimed in claim 35, wherein said [first selecting] filling means comprises means for filling the plurality of closed loops with a predetermined color.

46. (Twice Amended) A computer program product as claimed in claim 35, wherein said providing means comprises means for retrieving the set of continuous second curves from storage.

52. (Twice Amended) A method of modifying a typeface, font, or character, wherein the typeface, font, or character comprises a set of one or more closed first curves defining a boundary of a surface of the typeface, font, or character, wherein the set of one or more closed first curves contains no self-crossover points, the method comprises the steps of:

a providing step of providing a set of continuous second curves lying on the surface, wherein each of the continuous second curves intersects and crosses over one or more of the closed first curves and the set of continuous second curves contains no self-crossover points;

a first determining of determining a set of intersection points, wherein the intersection points are those points where the one or more closed first curves intersect the

continuous second curves and which lie on the boundary of the surface;

a second determining step of determining a set of crossover points from the set of intersection points; [and

selecting a plurality of] an assembling step of assembling a plurality of closed loops from curve intervals, delimited by [the] adjacent determined crossover points, from the set of one or more closed first curves and the set of continuous second curves in accordance with a predetermined rule, whereby the plurality of closed loops [to form a set of closed third curves, wherein the set of closed third curves] abuts a substantial portion of the boundary of the surface[ and forms a modified typeface, font, or character]; and

a filling step of filling the plurality of closed loops with a fill to form the modified typeface, font, or character.

53. (Twice Amended) An apparatus for modifying a typeface, font, or character, wherein the typeface, font, or character comprises a set of one or more closed first curves defining a boundary of a surface of the typeface, font, or character, wherein the set of one or more closed first curves contains no self-crossover points, the apparatus comprising:

means for providing a set of continuous second curves lying on the surface, wherein each of the continuous second curves intersects and crosses over one or more of the closed first curves and the set of continuous second curves contains no self-crossover points;

means for determining a set of intersection points, wherein the intersection

points are those points where the one or more closed first curves intersect the continuous second curves and which lie on the boundary of the surface;

means for determining a set of crossover points from the set of intersection points; [and

means for selecting a plurality of] assembling means for assembling a plurality of closed loops from curve intervals, delimited by [the] adjacent determined crossover points, from the set of one or more closed first curves and the set of continuous second curves in accordance with a predetermined rule, whereby the plurality of closed loops [to form a set of closed third curves, wherein the set of closed third curves] abuts a substantial portion of the boundary of the surface[ and forms a modified typeface, font, or character]; and

filling means for filling the plurality of closed loops with a fill to form the modified typeface, font, or character.

54. (Twice Amended) A computer program product comprising a computer readable medium including a computer program for modifying a typeface, font, or character, wherein the typeface, font, or character comprises a set of one or more closed first curves defining a boundary of a surface of the typeface, font, or character, wherein the set of one or more closed first curves contains no self-crossover points, the computer program product comprising:

means for providing a set of continuous second curves lying on the surface, wherein each of the continuous second curves intersects and crosses over one or more of

the closed first curves and the set of continuous second curves contains no self-crossover points;

means for determining a set of intersection points, wherein the intersection points are those points where the one or more closed first curves intersect the continuous second curves and which lie on the boundary of the surface;

means for determining a set of crossover points from the set of intersection points; [and

means for selecting a plurality of] assembling means for assembling a plurality of closed loops from curve intervals, delimited by [the] adjacent determined crossover points, from the set of one or more closed first curves and the set of continuous second curves in accordance with a predetermined rule, whereby the plurality of closed loops [to form a set of closed third curves, wherein the set of closed third curves] abuts a substantial portion of the boundary of the surface[ and forms a modified typeface, font, or character]; and

filling means for filling the plurality of closed loops with a fill to form the modified typeface, font, or character.

55. (Twice Amended) A method of modifying a typeface, font, or character, wherein the typeface, font, or character comprises a set of one or more closed first curves defining a boundary of a surface of the typeface, font, or character, wherein the set of one or more closed first curves contains no self-crossover points, the method comprises the steps of:

providing a set of continuous second curves lying on the surface, wherein each of the continuous second curves intersects and crosses over one or more of the closed first curves and the set of continuous second curves contains no self-crossover points;

determining a set of intersection points, wherein the intersection points are those points where the one or more closed first curves intersect the continuous second curves and which lie on the boundary of the surface;

determining a set of crossover points from the set of intersection points;

selecting unmarked adjacent crossover points from the set of determined crossover points to a form a closed loop;

marking the selected adjacent crossover points; [and]

repetitively performing the selecting and marking steps until a set of closed loops have been formed, wherein the set of closed loops abuts a substantial portion of the boundary of the surface[ and forms a modified typeface, font, or character]; and

filling the set of closed loops with a fill to form the modified typeface, font, or character.

56. (Twice Amended) Apparatus for modifying a typeface, font, or character, wherein the typeface, font, or character comprises a set of one or more closed first curves defining a boundary of a surface of the typeface, font, or character, wherein the set of one or more closed first curves contains no self-crossover points, the apparatus comprising:

means for providing a set of continuous second curves lying on the surface,

wherein each of the continuous second curves intersects and crosses over one or more of the closed first curves and the set of continuous second curves contains no self-crossover points;

means for determining a set of intersection points, wherein the intersection points are those points where the one or more closed first curves intersect the continuous second curves and which lie on the boundary of the surface;

means for determining a set of crossover points from the set of intersection points;

means for selecting unmarked adjacent crossover points from the set of determined crossover points to a form a closed loop;

means for marking the selected adjacent crossover points; and

means for repetitively performing the operations of said selection means and said marking means until a set of closed loops have been formed, wherein the set of closed loops abuts a substantial portion of the boundary of the surface[ and forms a modified typeface, font, or character]; and

means for filling the set of closed loops with a fill to form the modified typeface, font, or character.

57. (Twice Amended) A computer program product comprising a computer readable medium including a computer program for modifying a typeface, font, or character, wherein the typeface, font, or character comprises a set of one or more closed first curves defining a boundary of a surface of the typeface, font, or character, wherein the

set of one or more closed first curves contains no self-crossover points, the computer program comprising:

means for providing a set of continuous second curves lying on the surface, wherein each of the continuous second curves intersects and crosses over one or more of the closed first curves and the set of continuous second curves contains no self-crossover points;

means for determining a set of intersection points, wherein the intersection points are those points where the one or more closed first curves intersect the continuous second curves and which lie on the boundary of the surface;

means for determining a set of crossover points from the set of intersection points;

means for selecting unmarked adjacent crossover points from the set of determined crossover points to [a] form a closed loop;

means for marking the selected adjacent crossover points; [and]

means for repetitively performing the operations of said selection means and said marking means until a set of closed loops have been formed, wherein the set of closed loops abuts a substantial portion of the boundary of the surface[ and forms a modified typeface, font, or character]; and

means for filling the set of closed loops with a fill to form the modified typeface, font, or character.